PROJECT FACT SHEET

CONTRACT TITLE: Development and Demonstration of Mobile Small Footprint Exploration and Development Well System for the Arctic Uncoventional Gas Resources (ARCGAS)

ID NUMBER: DE-FG26-01BC15151

B&R CODE: AC1005000

CONTRACTOR: NANA Development Corporation

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DOE PROJECT MANAGER:

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PROJECT SITE

CITY: Anchorage **STATE:** AK
CITY: Kotzebue **STATE:** AK
CITY: Red Dog Mine **STATE:** AK

CONTRACT PERFORMANCE PERIOD:
4/16/2001 to 4/15/2002

PROGRAM: Exploration & Production
RESEARCH AREA: Slim Hole drilling, Completion, and Production
PRODUCT LINE: DCS

CO-PARTICIPANTS:

PERFORMER: Advanced Resources Inc.	**CITY:** Houston	**STATE:** TX	**CD:**
PERFORMER: COMINCO	**CITY:** Kotzebue	**STATE:** AK	**CD:**
PERFORMER:	**CITY:**	**STATE:**	**CD:**
PERFORMER:	**CITY:**	**STATE:**	**CD:**

FUNDING (1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	639	639	1278
FY 2002 CURRENT OBLIGATIONS	0	0	0
FUTURE FUNDS	0	0	0
TOTAL EST'D FUNDS	639	639	1278

OBJECTIVE: Develop tools, techniques and algorithms for drilling wells of less than three inches in diameter in arctic conditions. A conceptual design of a miniature mobile system for drilling, completing and producing gas wells in remote locations will be developed and tested.

PROJECT DESCRIPTION:

Background: Despite a vast resource base, the development of unconventional gas outside the continental U.S. has been slow. Alaska holds an estimated 1,000Tcf of coalbed methane resources and unquantified (but undoubtedly large) volumes of shale gas and tight gas sands. Exploration costs in Alaska are extremely high. Exploration costs in Alaska are very high. Oilfield technology development in Alaska has focused on high-cost , high-productivity oil fields of the North Slope. Using existing drilling and completion technology and infrastructure, the cost of exploring for and producing unconventional gas in Alaska is prohibitive. Furthermore, unconventional gas in Alaska is often found in environmentally sensitive areas where the drilling footprint needs to be minimized. Lastly, the nature of the gas markets in Alaska, primarily widely distributed villages, precludes the installation of large well-fields that are fundamental to cost-efficient, economic and remote development. To address these operational challenges and promote development of Alaska's large unconventional gas resources, new low-cost methods of obtaining critical reservoir parameters prior to drilling, completing and producing wells are required. Many mineral exploration techniques are potentially adaptable to unconventional gas exploration, but this has never been performed in a systematic manner. This project will compile the information and adapt or modify the technology to the specific needs of the Arctic unconventional gas operations.

Work to be Performed: This project will cost-share efforts underway at the Red Dog Mine, Alaska to develop the gas shale resources of the area as a fuel supply for power generation. Specifically the work will focus on the development of tools and techniques for obtaining important parameters from ultra slim (<3.0?) boreholes. Gathering reservoir data using small, readily available diamond-drilling rigs will greatly reduce the risks and costs associated with subsequent field development. Furthermore, the use of smaller rigs will minimize the footprint of the drilling operations and, hence, minimize the associated environmental impacts.

A secondary goal of the project will be to develop the conceptual design for using ultra-slim holes as production wells. The work will investigate issues such as casing and cementing, stimulation, artificial lift, and production operations.

PROJECT STATUS:

Current Work: Current work on the project involves the reduction and analysis of the drilling and testing data obtained during the summer drilling program. This portion of the work will examine the efficiency of the well testing program.

Scheduled Milestones:

Completion of test equipment design	05/01
Complete Drilling and testing work in the field at Red Dog Mine	08/01
Completion of data analysis and interpretation	12/01
Completion of conceptual miniature production system	02/02
Technology Transfer complete	05/02

Accomplishments: Drilled three holes and cleaned out and re-entered two former mineral exploration holes and completed density and resistivity logging
Completed the design of a well testing system to employ in an ultra-slim hole environment
Purchased and assembled the well testing equipment
Conducted a series of pressure transient and stress tests in four diamond drill holes at the Red Dog Mine

TECHNOLOGY TRANSFER:

Technology/Information Transfer: Technology transfer efforts are not schedule to begin until January 2002 after the results have been analyzed and the technology successfully proven. However, the project has received considerable attention in the industry through informal means and we have been invited to present three papers during the first part of 2002. One presentation will be at the AAPG Anchorage Session in May 2002.

Public Relations:

Updated By: **Rhonda Lindsey with ARI and NANA, Inc.** Date: **10/1/2001**